

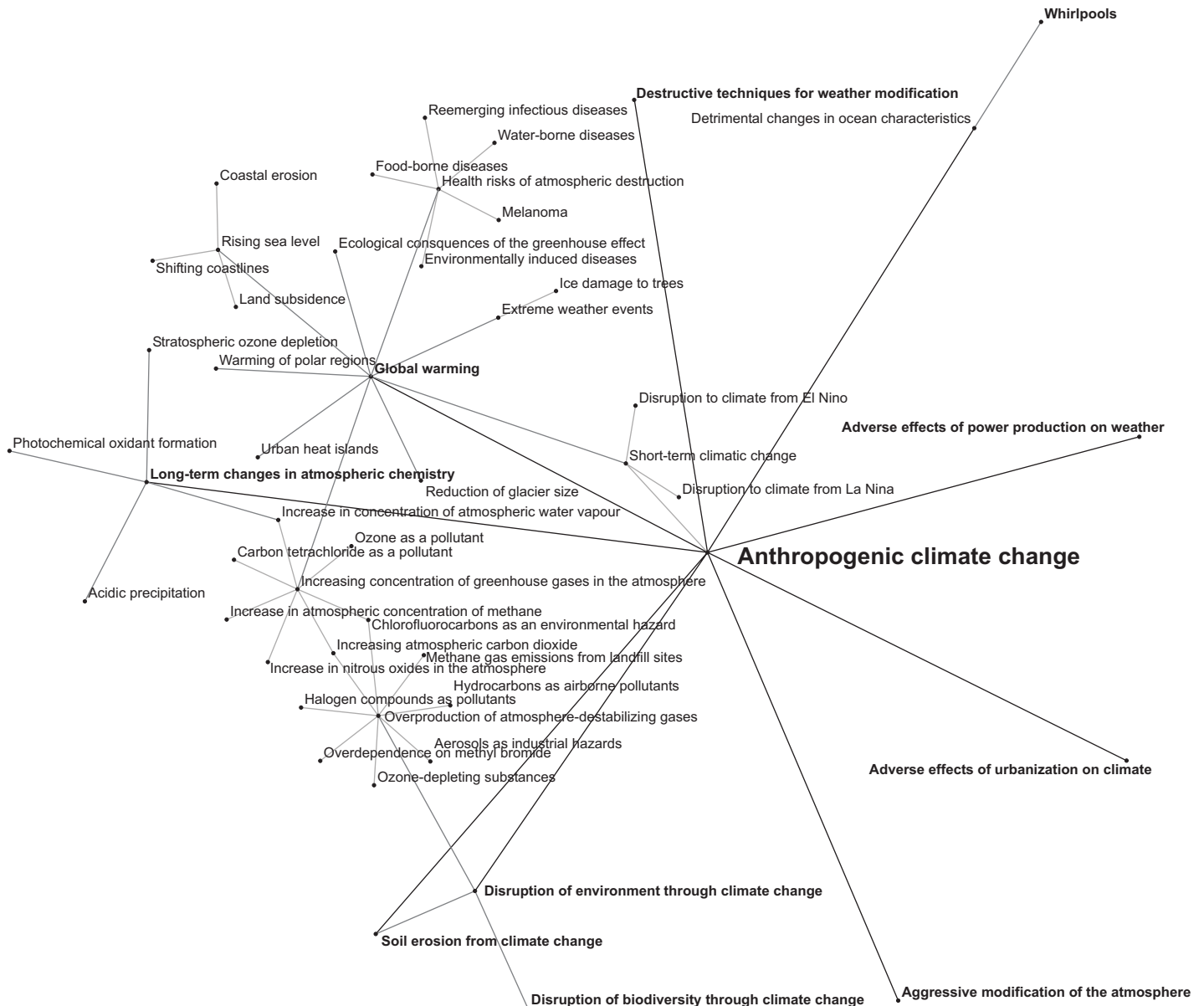
Figure 10.1.2.3. Anthropogenic climate change

Database: World Problems and Issues

Link type: narrower problems

Network nodes: 49

UIA database: <http://db.uia.org/scripts/sweb.dll/uiaf?DD=PR&DR=C9717>



Anthropogenic change means human-induced change to a natural system. Human activity is having a measurable and negative impact on the climate system. Modification of the surface of the earth induce climatic changes. The main effects are three-fold. First, the ratio of solar radiation reflected from and absorbed by the earth's surface is changed. Secondly, the ratio of convective and evaporative heat released from the earth's surface is changed. Finally, the hydrologic cycle is modified. With human progress the direct effects of energy and mass transfer upon atmosphere are acquiring more and more significance. Thermal pollution of the atmosphere is observable over the largest cities. There is the pollution of atmosphere by aerosols and man-made industrial gases, such as soot and oxides of carbon and nitrogen. Humans can also change the climate intentionally: meteorologists are trying to modify the weather, to prevent hail storms or to produce rain. Scientific evidence is accumulating that humanity's use of fossil fuels is adding to atmospheric levels of greenhouse gases (carbon dioxide (CO₂) especially) causing detectable global warming and hence changing the global climate. The evidence shows that (CO₂) levels have increased by over 30% since the industrial revolution and these levels are now at the highest they have been for the past 420,000 years and quite possibly for the past 20 million years, whilst global temperatures have increased by 0.6 degrees Celsius over the last century. Projections for the next century show that human activities are likely to cause a temperature change of between two and ten times this size. The effects of this change are likely to be very damaging. It is probable that there will be more severe weather events such as storms, floods and droughts. People living in coastal areas (which is a large fraction of the population) will be particularly vulnerable. Some diseases will extend their range, whilst natural ecosystems will also suffer.